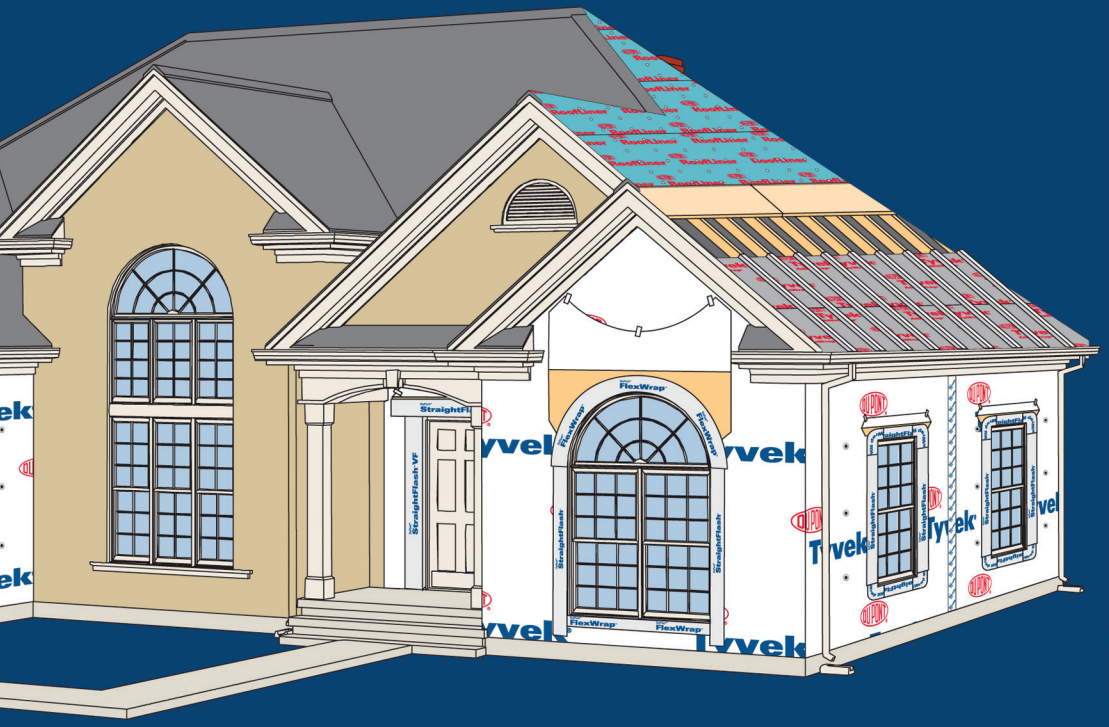

DuPont™ Tyvek® Water-Resistive and Air Barriers Installation Guidelines

DuPont™ Tyvek® Water-Resistive and Air Barriers Installation Guidelines

HELPING YOU GET THE JOB DONE RIGHT

DUPONT®

Tyvek®

FOR BUILDINGS LESS THAN 5 STORIES

REVISION 2/12

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Applicable Products

Water-Resistive Barriers (WRB)

PRODUCT	DIMENSIONS	AREA
DuPont™ Tyvek® HomeWrap®	3 ft x 100 ft 3 ft x 165 ft 5 ft x 200 ft 9 ft x 100 ft 9 ft x 150 ft 10 ft x 100 ft 10 ft x 150 ft	300 sq ft 495 sq ft 1,000 sq ft 900 sq ft 1,350 sq ft 1,000 sq ft 1,500 sq ft
DuPont™ Tyvek® StuccoWrap®	5 ft x 200 ft	1,000 sq ft
DuPont™ Tyvek® DrainWrap™	9 ft x 125 ft 10 ft x 125 ft	1,125 sq ft 1,250 sq ft
DuPont™ Tyvek® ThermaWrap™	5 ft x 150 ft 9 ft x 100 ft	750 sq ft 900 sq ft
DuPont™ Tyvek® CommercialWrap®	5 ft x 200 ft 10 ft x 125 ft	1000 sq ft 1250 sq ft
DuPont™ Tyvek® CommercialWrap® D	5 ft x 200 ft 10 ft x 125 ft	1,000 sq ft 1,250 sq ft

Installation Accessories*

PRODUCT	TYPE	QUANTITY
DuPont™ Tyvek® Tape	2" Bulk Pack 3" Bulk Pack	36 rolls/case 24 rolls /case
DuPont™ Tyvek® Metallized Tape	2" x 100' Rolls	12 rolls/case
DuPont™ Tyvek® Wrap Caps for Crossfire® Cap Stapler	16 gauge; available in 7/8", 1-1/4", and 1-1/2" lengths	2000 per box
DuPont™ Tyvek® Wrap Caps for Stinger™ Cap Stapler	16 gauge; 3/8" length	2016 per box
DuPont™ Tyvek® Wrap Cap with alternate screws		
1.0 inch minimum crown staples**		

* Apply per manufacturers' guidelines. For non DuPont products, DuPont assumes no liability for use of recommended products; installers need to evaluate suitability of recommended products in their end-use applications.

** Except when installing DuPont™ Tyvek® WRBs over foam and other non-nail-base sheathings.

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Flashing Products

PRODUCT	DIMENSIONS	AREA
DuPont™ FlexWrap™ NF	6 in x 75 ft 9 in x 75 ft	37.50 sq ft 56.20 sq ft
DuPont™ StraightFlash™	4 in x 150 ft 9 in x 125 ft	50 sq ft 93.75 sq ft
DuPont™ StraightFlash™ VF	6 in x 125 ft	62.5 sq ft
DuPont™ Flashing Tape	4 in x 100 ft 6 in x 100 ft 9 in x 100 ft	33.33 sq ft 50.2 sq ft 75 sq ft

Necessary Materials

- DuPont™ Tyvek® WRB
- 2″ or 3″ DuPont™ Tyvek® Tape
- DuPont™ Tyvek® Wrap Caps or recommended fasteners (see step 3)
- DuPont™ Residential Sealant, DuPont™ Commercial Sealant or recommended sealant

Warranty

Please see warranty requirements for buildings less than 5 stories at www.weatherization.tyvek.com.

Water-Resistive Barrier (WRB) Code Requirements

These mechanically attached barriers meet ICC-ES AC-38 Water-Resistive and Air-Barrier Requirements.

- ICC-ES Evaluation Report ESR 2375
  - DuPont™ Tyvek® HomeWrap®
  - DuPont™ Tyvek® StuccoWrap ®
  - DuPont™ Tyvek® DrainWrap™
  - DuPont™ Tyvek® CommercialWrap®
  - DuPont™ Tyvek® CommercialWrap® D
- ICC-ESR-1993: DuPont™ Tyvek® ThermaWrap™

And Industry Standard ASTM E 2556 Type II Standard Specification for Vapor Permeable Flexible Sheet Water-Resistive Barriers Intended for Mechanical Attachment.

General Instructions

The best time to install DuPont™ Tyvek® water-resistive barriers is:

- After the roof sheathing is installed
- After the step flashings and kickout flashings have been installed
- **BEFORE** the windows and doors are installed.

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Special Considerations

1. When performance requirements exceed ASTM E1677, 65 mph equivalent structural load and 15 mph equivalent wind-driven rain water infiltration for buildings less than 5 stories, it is recommended to install a high pressure skirt to help prevent water intrusion at the sill or threshold and follow the *DuPont™ Flashing Systems Commercial Installation Guidelines*.
2. DuPont™ Tyvek® StuccoWrap™ and DuPont™ Tyvek® DrainWrap™ must be installed with drainage grooves vertical, going up and down.
3. To obtain the installed R-Value benefits of DuPont™ Tyvek® ThermaWrap™ it must be installed with shiny, metallic side facing towards a clear ¾ inch minimum airspace. DuPont™ Tyvek® ThermaWrap™ will still act as a water-resistive barrier without an airspace. Refer to the *DuPont™ Tyvek® ThermaWrap™* Fact Sheet for more information.
4. DuPont requires that DuPont™ Tyvek® HomeWrap®, DuPont™ Tyvek® StuccoWrap®, DuPont™ Tyvek® DrainWrap™ and DuPont™ Tyvek® ThermaWrap™ be covered within 4 months (120 days) of installation. DuPont™ Tyvek® CommercialWrap® and DuPont™ Tyvek® CommercialWrap® D must be covered within 9 months (270 days) of installation.

When installing windows and doors prior to the DuPont™ Tyvek® WRB , refer to the *DuPont™ Flashing Systems Installation Guidelines*, *Installation Instructions for Windows and Doors BEFORE Water-Resistive Barrier (WRB) is Installed,* which will direct you back to this guide at the appropriate step.

If the windows and doors have already been installed and flashed, **integrate the DuPont™ Tyvek® WRB by following the DuPont™ Flashing Systems Integration section in this guide (page 9)**.

NOTE: If DuPont™ FlexWrap™ NF and apron are used, install the DuPont™ Tyvek® WRB under the apron to ensure proper shingling. If a non-self adhering sill flashing product is used, please maintain proper shingling.

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Installation Instructions

Start at the bottom of the structure to ensure proper shingling throughout the installation. Proper shingling is required to shed water and to prevent water from entering the wall system.

STEP 1

UNWRAP roll at corner, leaving 6" to 12" vertical overlap.

Printed stud marks are available on some DuPont™ Tyvek® WRBs to aid in aligning with the studs. (e.g. studmarks are 8" apart for DuPont™ Tyvek® HomeWrap®)

STEP 2

Roll should be plumb. Bottom edge of roll should extend over sill plate interface at least 2". For maximum air leakage reduction (when installing as an air barrier), seal wrap at the bottom of the wall with sealant (i.e. DuPont™ Residential, DuPont™ Commercial Sealant or recommended sealant), DuPont™ Tyvek® Tape, DuPont™ StraightFlash™ or DuPont™ Flashing Tape. Extend to bottom of sill plate for slab on grade foundations. For stucco exteriors integrate with weep screed.

STEP 3

Secure DuPont™ Tyvek® WRB to the stud or other nail-base material i.e wood sheathing. Fasteners should be spaced no closer than 6" and no farther than 18" on vertical stud lines. This may involve penetrating bandboard or other horizontal members to maintain proper spacing. Use one or more of the recommended fasteners below for use with DuPont™ Tyvek® WRBs:

- DuPont™ Tyvek® Wrap Cap nails
- DuPont™ Tyvek® Wrap Cap screws
- DuPont™ Tyvek® Wrap Cap Staples for Stinger™*
- 1.0 inch minimum crown staples*

*Except when installing DuPont™ Tyvek® WRB over foam and other non-nail-base sheathings.

Please see "Use of Temporary Fastening Methods" later in this guide for more information on alternative fastening schedules and requirements.

NOTE: Do not fasten within 9" of rough opening head.

STEP 4

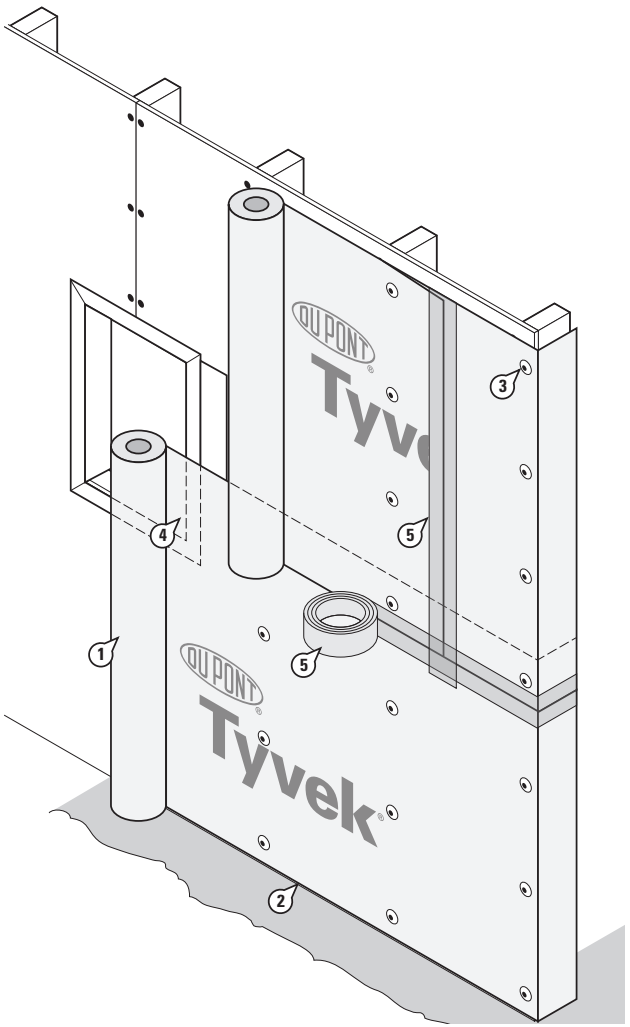
Unroll directly over windows and doors. Upper layer of DuPont™ Tyvek® WRB should overlap bottom layer by a minimum of 6".

Refer to the DuPont™ Flashing Systems Installation Guidelines to prepare and flash window and door openings.

NOTE: If windows are already installed, the DuPont™ Tyvek® WRB must be integrated with proper shingling with window flashings. If DuPont™ FlexWrap™ NF and apron are used, install the DuPont™ Tyvek® WRB under the apron to ensure proper shingling. If non-self adhering sill flashing is used, install the WRB under the bottom of the sill flashing to maintain proper shingling.

STEP 5

All vertical seams shall be taped with DuPont™ Tyvek® Tape. When installing as an air barrier, also tape all horizontal seams. Taping all vertical and horizontal seams, and taping or sealing all terminations (including, but not limited to, roof-wall interfaces and sill plates) is required when installing DuPont™ Tyvek® WRBs as air barriers. Use 3" DuPont™ Tyvek® Tape when taping horizontal laps of DuPont™ Tyvek® StuccoWrap® and DuPont™ Tyvek® DrainWrap™. Use DuPont™ Tyvek® Metalized Tape when taping DuPont™ Tyvek® ThermaWrap™.



STEP 6

After DuPont™ Tyvek® WRB is installed refer to the *DuPont™ Flashing Systems Installation Guidelines, Installation Instructions for Windows and Doors AFTER Water-Resistive Barrier (WRB) is Installed* to prepare and flash windows and doors.

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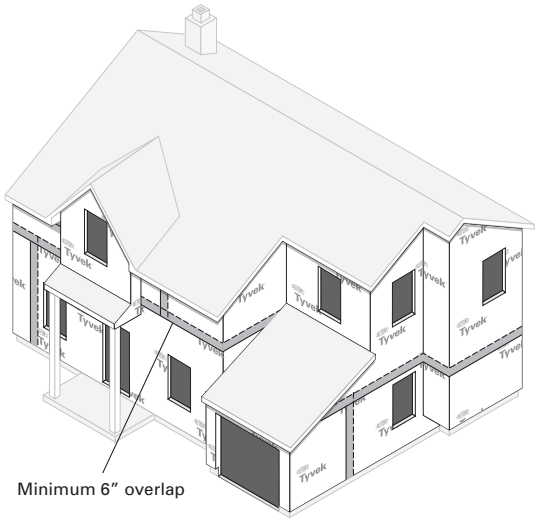
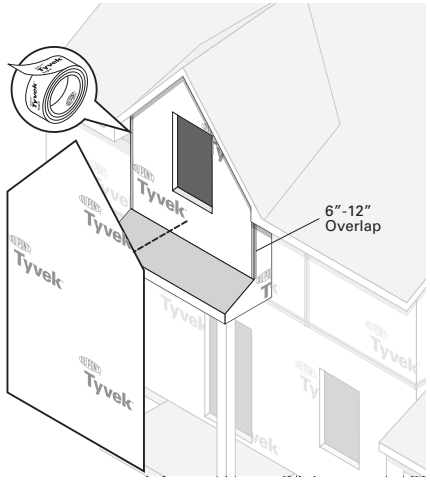
Continuity

It is important to maintain the continuity of the water-resistive barrier from top to bottom with proper shingling. Continue wrapping all the way up the structure, overlapping the previous layer of DuPont™ Tyvek® WRB by a minimum of 6". Wrap the entire wall surface including unconditioned spaces.



Gable Ends

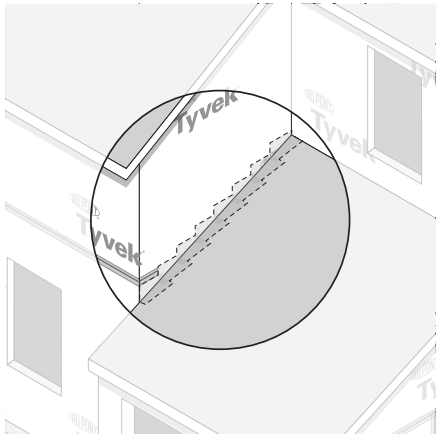
Completely cover the Gable End with the DuPont™ Tyvek® WRB including a 6"-12" overlap at each corner. Cut away the excess WRB and tape all seams.



Terminations

Lap DuPont™ Tyvek® WRB over all flashing (e.g. step flashing, wall to roof intersections and thru-wall flashings).

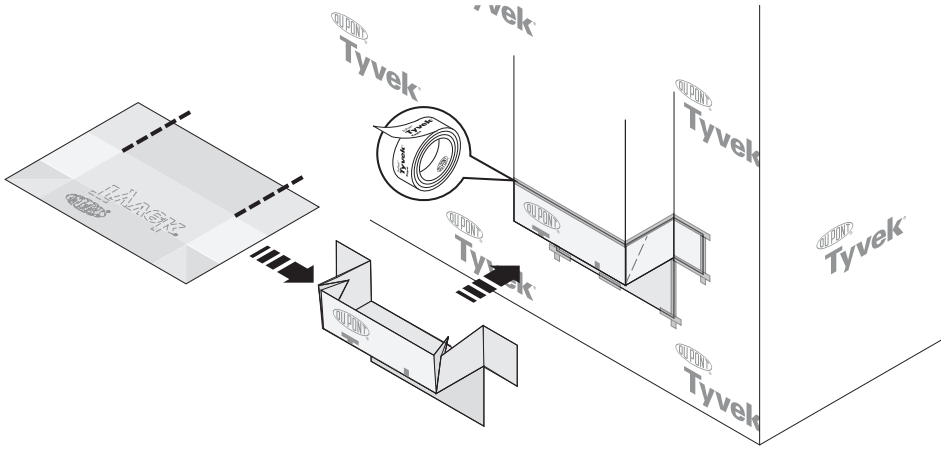
Weep screeds and expansion joints need to be integrated with flashings and the water-resistive barrier.



Cantilever Floors

Wrap the DuPont™ Tyvek® WRB under and up the Cantilever floor and fold the DuPont™ Tyvek® WRB up the sides of the Cantilever wall a minimum of 6". Tape all corners. The top layer of DuPont™ Tyvek® WRB should go over the bottom layer a minimum of 6".

NOTE: Make the inside corner as tight as possible using a 1x4 or similar.



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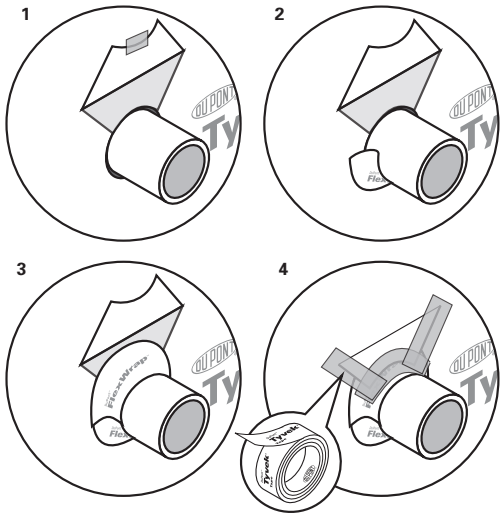
Penetrations

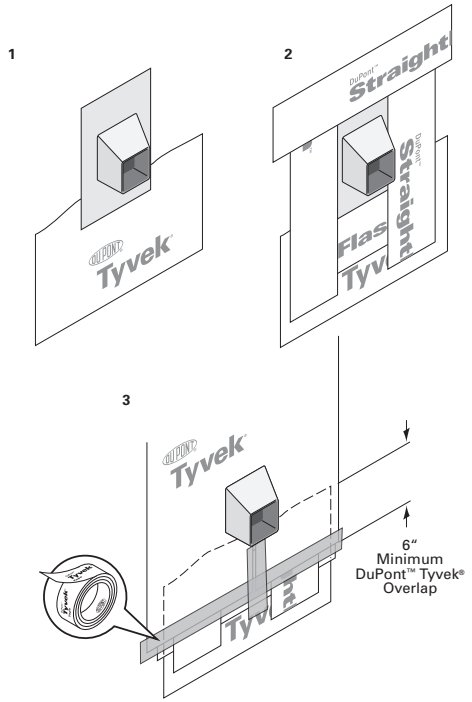
There are many types of penetrations including dryer vents, bathroom exhaust fans, exterior electrical outlets, exterior lights, gas lines, etc.

Seal around all electrical, HVAC and plumbing penetrations with DuPont™ Flashing Systems products, DuPont™ Tyvek® Tape, DuPont™ Residential Sealant, DuPont™ Commercial Sealant or recommended sealant.

Start flashing or taping at bottom of penetrations, shingling upper tape over bottom tape.



Products that have flanges should be integrated into the DuPont™ Tyvek® WRB using DuPont™ Tyvek® Tape or DuPont™ Flashing Systems products.

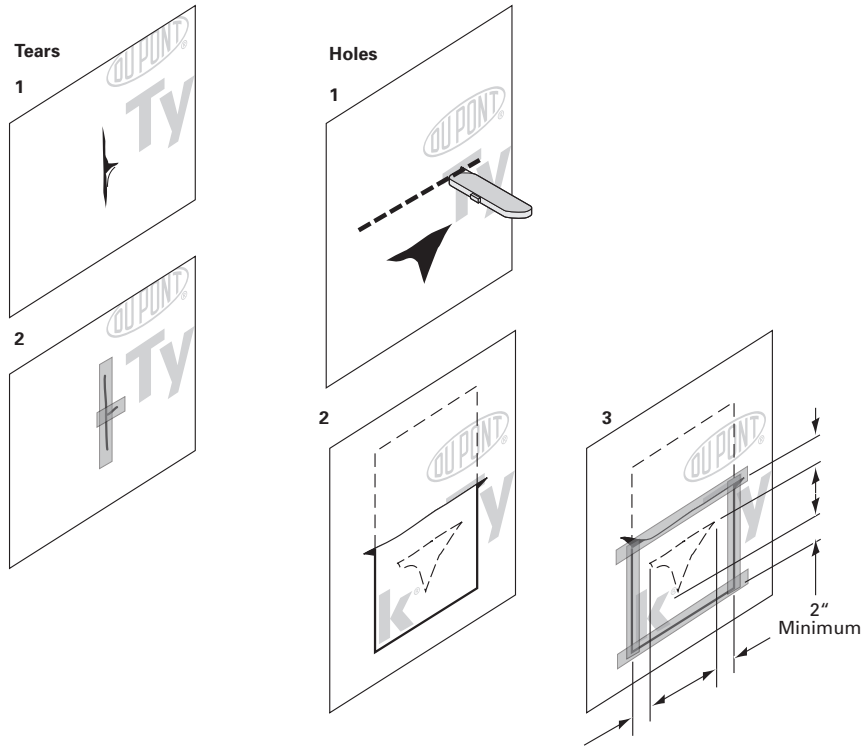


Handling Tears and Holes

During the course of installing the DuPont™ Tyvek® WRB, minor tears may occur. Be sure to tape all tears. Tears can easily be covered with DuPont™ Tyvek® Tape (2" or 3") or DuPont™ Flashing Systems products.

Larger holes (greater than 1") may require cutting a piece of DuPont™ Tyvek® WRB to cover the hole, maintaining proper shingling.

Cut a slit 2" above the hole and extending a minimum of 2" on each side of the hole. Measure and cut a piece of DuPont™ Tyvek® WRB to fit into the slit and cover the hole. Tuck the cut piece of DuPont™ Tyvek® WRB into the slit. Tape along the perimeter by starting at the bottom of the patch, shingling upper tape over bottom tape.



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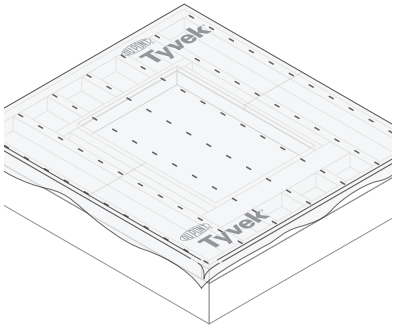
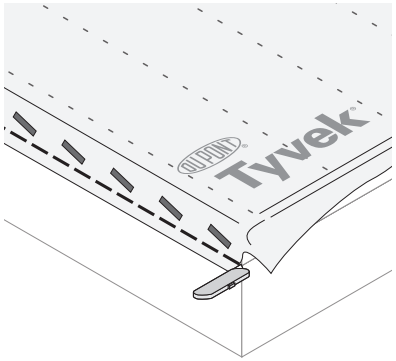
Tilt Wall Instructions

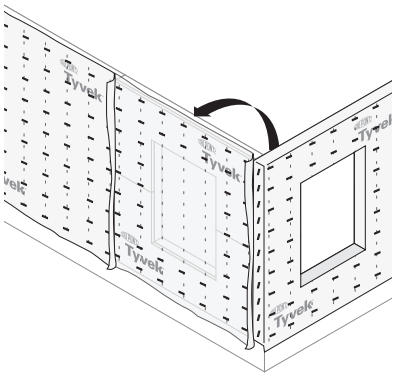
STEP 1 Unroll and secure DuPont™ Tyvek® WRB over the wall panel. Leave enough lap to ensure a minimum 6" overlap of the DuPont™ Tyvek® WRB on all sides except top of the wall. These flaps allow for a DuPont™ Tyvek® WRB-to-DuPont™ Tyvek® WRB seal with adjacent sides. When taping, make sure the stud marks printed on the DuPont™ Tyvek® WRB line up with the first stud and that the roll is plumb.



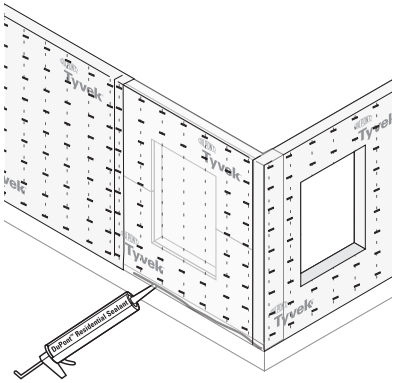
STEP 2 When starting a wall section, fold the beginning side flap over the vertical side of the stud and secure. Trim off excess. Ensure that the bottom flap overhangs enough so that, when the wall is tilted upright, it overlaps the sill plate.



STEP 3 As each wall section is raised, ensure that the bottom flaps overlap the sill plate and that the side flaps are on the exterior of the house.



STEP 4 Fasten the side flaps and secure the bottom flap to the foundation. For maximum air leakage reduction (when installing as an air barrier), seal wrap at the bottom of the wall with DuPont™ Residential Sealant, DuPont™ Commercial Sealant, or recommended sealant, DuPont™ Tyvek® Tape, DuPont™ StraightFlash™ or DuPont™ Flashing Tape.



STEP 5 All vertical seams shall be taped with DuPont™ Tyvek® Tape. When installing as an air barrier, also tape all horizontal seams. Taping all vertical and horizontal seams, and taping or sealing all terminations (including, but not limited to, roof-wall interfaces and sill plates) is required when installing DuPont™ Tyvek® building wraps as air barriers. Use 3" DuPont™ Tyvek® Tape when taping horizontal laps of DuPont™ Tyvek® StuccoWrap® and DuPont™ Tyvek® DrainWrap™. Use DuPont™ Tyvek® Metalized Tape when taping DuPont™ Tyvek® ThermaWrap™.

STEP 6 After water-resistive barrier is installed refer to the DuPont™ Flashing Systems Installation Guidelines to prepare and flash windows and doors.

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DuPont™ Flashing Systems Integration

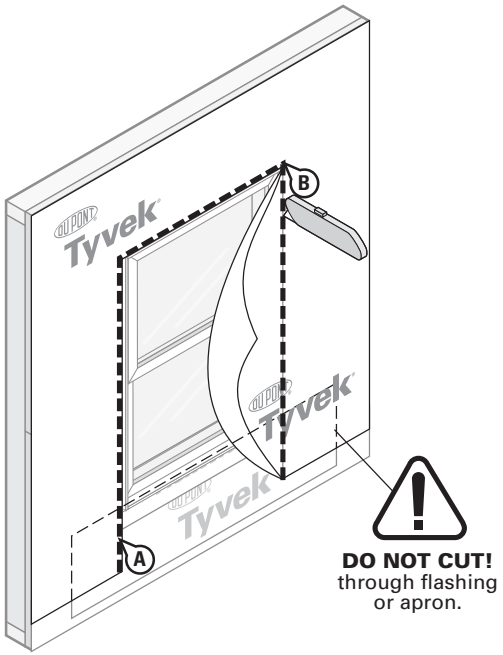
If windows and doors have not been installed reference the *DuPont™ Flashing Systems Installation Guidelines, Installation Instructions for Windows and Doors AFTER Water-Resistive Barrier (WRB) is Installed* to prepare the rough opening.

If windows and doors are already installed and flashed, then follow these last 2 integration steps to tie the DuPont™ Tyvek® WRB into the flashing.

STEP 1

A. Verify that the DuPont™ Tyvek® WRB is properly shingled with the bottom of the apron.

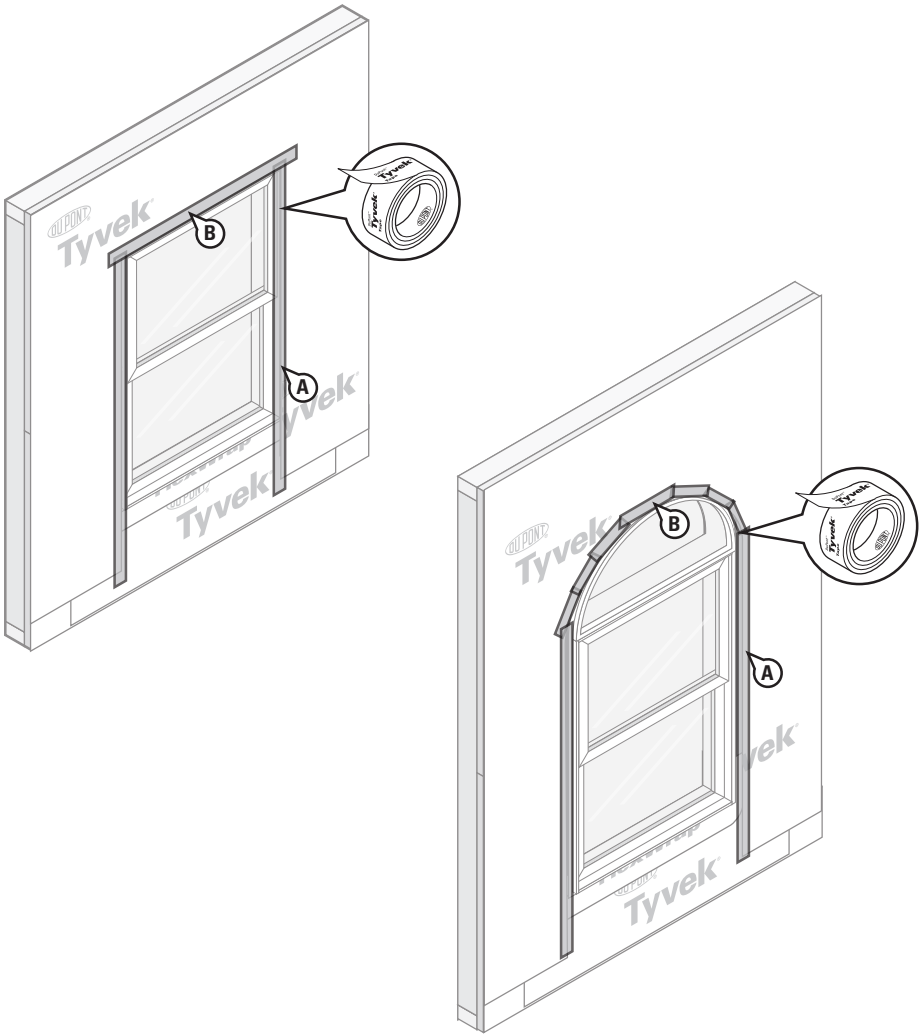
B. Cut as shown to expose window and apron. **DO NOT CUT THROUGH FLASHING OR APRON.**



STEP 2

A. Tape all seams as shown. **DO NOT TAPE** at bottom of window.

B. At the head, continuous tape seams as shown with DuPont™ Tyvek® Tape. Skip-taping at the head is acceptable if an air barrier is not required or if additional drainage is desired.



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Facade Considerations

Water-resistive barrier performance is dependent upon the ability of the facade to drain. The following must be considered for specific facades.

Stucco

When stucco is installed over wood-based sheathing, the 2009 International Building Code (Section 2510.6) and the 2009 International Residential Code (Section R703.6.3) require "a water-resistive vapor-permeable barrier with a performance at least equivalent to two layers of Grade D paper" or a layer of water-resistive barrier (WRB) which is separated from the stucco by an "intervening layer". When DuPont™ Tyvek® water-resistive barriers are used behind stucco they should be separated from the stucco by a second layer of DuPont™ Tyvek® WRB, a layer of Grade D building paper, felt, rigid foam board or the paper backing of paper-backed lath. The first layer (directly over sheathing or studs) serves as the wall system's water-resistive barrier and is integrated with window and door flashings, the weep screed at the bottom of the wall and any through-wall flashings or expansion joints. Lath shall be installed over the intervening layer in accordance with ASTM C1063-03 Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster and applicable codes. Rigid foam board, when installed over DuPont™ Tyvek® WRB as an intervening layer, will provide enhanced structural support to the DuPont™ Tyvek® layer WRB and may reduce the required number of fasteners used for the attachment of the DuPont™ Tyvek® WRB if installed as soon as practically possible.

Brick

The 2009 International Residential Code (Section R703.7.4.2) requires a nominal 1 inch airspace separating the brick from the water-resistive barrier (WRB). The Brick Industry Association recommends a 1 inch air-space in front of wood stud construction and a 2 inch air-space in front of steel stud construction. Consistent with these requirements and recommendations, DuPont™ Tyvek® WRBs shall be separated from the brick veneer by a nominal 1 inch air-space. Window and door flashing, and through-wall flashing shall be integrated with the DuPont™ Tyvek® WRB layer ensuring proper shingling. For maximum moisture management and drying of the wall system the airspace in front of the DuPont™ Tyvek® WRB shall be vented to the exterior at the top and bottom of the wall. Some types of brick ties will act as additional fasteners for DuPont™ Tyvek® WRBs, and, if installed as soon as practically possible after the DuPont™ Tyvek® WRB, may reduce the required number of fasteners used for the initial attachment of the DuPont™ Tyvek® WRB. DuPont™ StuccoWrap®, DrainWrap® or CommercialWrap® D are recommended for this application and meet drainage requirements for one coat stucco and EIFS systems.

Stone Veneer

The 2009 International Building Code (Section 1405.7) requires two layers of water-resistive barrier (WRB) behind stone (natural, manufactured, synthetic) veneers over wood frame construction. When DuPont™ Tyvek® WRBs are used behind stone veneer, they should be separated from the stone and mortar by a second layer of DuPont™ Tyvek® WRB, a layer of grade D building paper, felt, rigid foam board or the paper backing of paper-backed lath. The first layer (directly over sheathing or studs) serves as the wall system's water-resistive barrier and shall be integrated with window and door flashings, the weep screed at the bottom of the wall and any through-wall flashings or expansion joints. When rigid foam board is used as the second layer, it is installed in front of the DuPont™ Tyvek® WRB. DuPont™ StuccoWrap®, DrainWrap® or CommercialWrap® D is recommended for this application.

Wood Siding

DuPont™ Tyvek® water-resistive barriers (WRB) and wood siding shall be installed according to manufacturer's instructions, industry standards and applicable codes. As recommended by the Western Red Cedar Lumber Association and U. S. Forest Product Laboratory, wood siding should be primed on all six sides before installation. Foam sheathing panels often have low vapor permeability, and therefore can cause moisture to accumulate on the back of siding and cause staining, buckling and damage to finish coats. As a result, the Western Red Cedar Lumber Association and other wood siding manufacturers recommend that furring strips are used to create an air space between foam sheathing and siding. Other recommendations that should be followed to minimize potential problems are:

- Use thicker siding patterns in widths of 8 inches or less. Thick, narrow siding is more stable than thinner, wider patterns and better able to resist dimensional changes.
- Use kiln-dried siding over rigid foam sheathing.
- Proper pre-finishing is essential.
- Use light color finish coats to maximize heat reflection and reduce dimensional movement.
- In all cases it is recommended that house wrap, such as DuPont™ Tyvek® DrainWrap® , be applied over the foam sheathing.

In high exposure installations, enhanced drainage and water management may be provided by using DuPont™ Tyvek® DrainWrap™, by installing a drainage mesh over the water-resistive barrier, or by creating rainscreen cladding with a larger airspace behind the siding using furring strips. If furring is installed over the DuPont™ Tyvek® WRB to create a rainscreen, the primary fastener spacing can exceed 18".

Fiber Cement Siding

DuPont™ Tyvek® WRBs and fiber cement siding shall be installed according to manufacturer's instructions and industry standards. In high exposure installations, enhanced drainage and water management may be provided by using DuPont™ Tyvek® DrainWrap™, by installing a drainage mesh over the water-resistive barrier, or by creating rainscreen cladding with a larger airspace behind the siding using furring strips. If furring is installed over the DuPont™ Tyvek® water-resistive barrier to create a rainscreen, the primary fastener spacing can exceed 18". In high wind areas at gable end walls, FEMA recommends fiber cement siding be installed over wood sheathing rather than over plastic foam sheathing. DuPont™ Tyvek® WRBs and fiber cement siding shall be installed according to manufacturer's instructions, industry standards and applicable codes.

Vinyl Siding

Vinyl Siding is installed directly over DuPont™ Tyvek® WRBs. Vinyl siding shall be installed in accordance with manufacturer's instructions, industry standards and applicable codes, including ASTM D4756-06 Standard Practice for Installation of Rigid Poly(Vinyl Chloride) (PVC) Siding and Soffit. In high wind areas at gable end walls, FEMA recommends vinyl siding be installed over wood sheathing rather than over plastic foam sheathing.

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Use of Temporary Fastening Methods

Fastener selection and fastening schedule is a function of holding power during exposure and durability while in service. *DuPont™ Tyvek® Water-Resistive and Air Barriers Installation Guidelines* require the use of cap fasteners (nail, staple and screw) or 1" crown staples as the means for permanently attaching DuPont™ Tyvek® WRBs. In addition to fastener selection, DuPont requires a permanent fastener schedule between 6 to 18 inches, anchored to the studs. These fasteners and schedule are considered a permanent means of attachment and provide substantial holding power during exposure. Cap fasteners provide additional protection against moisture and air infiltration at the fastener location, especially when the cladding is in intimate contact with the water-resistive barrier and there is minimal drainage.These fastening guidelines minimize the number of penetrations while maintaining a balance of product durability during exposure. Sheathing other than structural OSB and plywood should not be relied on as the fastening base. This includes, but is not limited to, foam, fiberboard, and gypsum sheathing materials.

Use of recommended permanent fasteners at reduced schedules, other mechanical fasteners such as smaller staples (slap staples) and adhesives are considered temporary fastening methods because they do not have substantial holding power and may not provide adequate durability while in service. Temporary fasteners should not be relied upon to permanently attach DuPont™ Tyvek® WRB. Because these fasteners have limited holding power, they are not supported by DuPont as the primary means of attachment.

Temporary fastening methods can be used if the following guidelines are followed:

- Temporary fastening methods shall only be used to tack the DuPont™ Tyvek® WRB in place when a permanent fastener is installed immediately after the temporary fasteners are installed. In this case, permanent fasteners include cladding fasteners such as brick ties, lath fasteners for traditional stucco, external foam board fasteners, or siding installed with nails. Cladding shall be installed according to applicable building codes and industry standards.
- When using adhesives, vertical strips spaced approximately every 24 to 36 inches or along every other stud line are acceptable. Vertical strips may be applied to the outer face of the sheathing or directly to the studs for open stud construction. When using adhesives, care must be taken to avoid excessive surface coverage as this may impact the vapor permeability in that area. Adhesives should be evaluated for compatibility with DuPont™ Tyvek® WRBs.
- When using temporary mechanical fasteners, they should be used minimally to tack the DuPont™ Tyvek® WRB in place. Small staple fasteners are acceptable with OSB, plywood and exterior gypsum sheathing only. Small staple fasteners should not be used with fiberboard or foam sheathing. Temporary fastener schedule should not exceed four (4) fasteners per square yard. Tape all tears and localized damage. For larger holes (greater than 1") follow instructions on page 7 of this guide.

Selection and use of temporary fastening methods is an option dependent on building schedule, cladding type and local building practices.

NOTE: These Temporary Fastening Guidelines are subject to change based on new technology or testing information and may be superseded at any time. It is always important to follow the latest guidelines which may be found on www.Weatherization.Tyvek.com.

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Key Installation Requirements for Wraps

Continuity

It is important to maintain the continuity of the WRB throughout the building envelope. The entire wall surface shall be wrapped, including unconditioned spaces. Special attention should be given to ensure a proper 6'' overlap at all terminations, seams, penetrations, and transitions to maintain a continuous downward drainage plane and WRB. Installing the DuPont™ Tyvek® WRB as an air barrier is the preferred installation method, but when the DuPont™ Tyvek® WRB is being installed as a water-resistive barrier only (residential/low-rise), then skip-taping terminations and untaped horizontal seams is allowed. All vertical seams must be taped for both air barrier and water-resistive barrier installations.

Penetrations

Seal the DuPont™ Tyvek® Products around all penetrations (electrical, HVAC and plumbing, etc.) with the appropriate DuPont™ Flashing Systems product, DuPont™ Tyvek® Tape, DuPont™ Residential Sealant, DuPont™ Commercial Sealant, or recommended sealant. Products that have flanges should be integrated into the DuPont™ Tyvek® WRB. DuPont™ StraightFlash™, DuPont™ Flashing Tape or DuPont recommended alternate patches should be applied behind fastening plates (brick tie base plates, metal fastening clips, metal channels, etc.) when building envelope design requirements exceed ASTM E1677, 65 mph equivalent structural load and 15 mph equivalent wind-driven rain water infiltration resistance. Please contact 1-800-44-Tyvek for recommended sealants and recommended alternate patches behind fastening plates.

Overlap

Ensure proper shingling with a 6'' minimum overlap of the WRB components from the bottom to the top of the wall to help facilitate proper drainage.

Fasteners

Use DuPont fasteners or DuPont recommended alternates per the fastening schedule included in this installation guideline. Temporary fasteners should not be relied upon to permanently attach DuPont™ Tyvek® WRBs due to the limited holding power of these fastening methods, and will not be in compliance with the *DuPont™ Tyvek® Water-Resistive and Air Barriers Installation Guidelines*. If temporary fasteners are used, permanent fastening must be applied as soon as practically possible in order to maintain the integrity and performance of the DuPont™ Tyvek® WRB. Refer to the *DuPont™ Tyvek® Weather Barrier Commercial Installation Guidelines*, for more complete fastening information. Examples of recommended permanent fasteners include:

- DuPont™ Tyvek® Wrap Cap nails (for wood frame construction)
- DuPont™ Tyvek® Wrap Cap Staples for Stinger™ (for wood frame construction)
- 1.0 inch minimum crown staples for residential/low rise construction (except when installing DuPont™ Tyvek® WRB over foam sheathing)
- 1" plastic cap staple with leg length sufficient to achieve 5/8"penetration into wood stud (for wood frame construction)
- DuPont™ Tyvek® Wrap Cap 2" plastic cap screws (for steel or wood frame construction)
- 1-1/4" metal gasketed washers with screws (for steel frame construction)
- 2" metal gasketed washers with screws (for steel frame construction)
- Tapcon® fasteners with 2'' plastic caps (for masonry construction)

Special Considerations

Refer to the Technical Specification section for composition, UV exposure, surface burning characteristics, and other special considerations.

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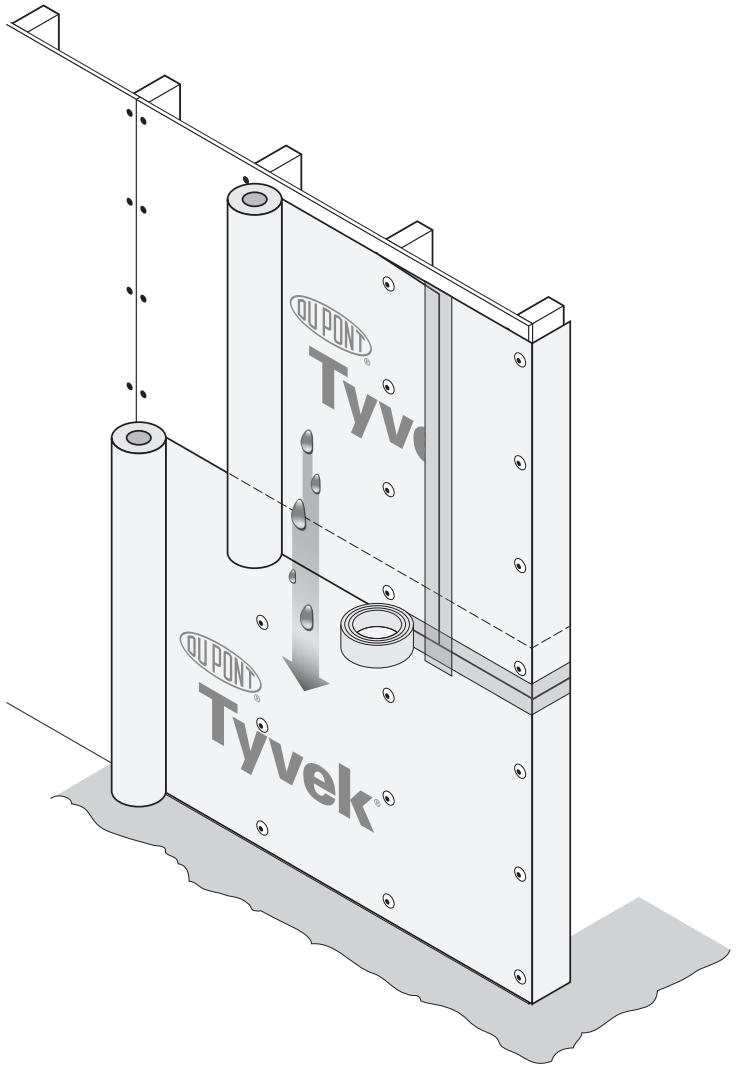
PROPER OVERLAP FOR WATER MANAGEMENT

A. Lap all components from bottom of the wall to the top of the wall

B. Treat the walls of the building just like a roof



NOTE: A condition of the DuPont 10 year Limited Warranty is compliance with the Installation Guidelines for DuPont Weatherization Products. In the event that a specific detail or installation technique is not part of the Installation Guidelines at the time that you are building., then the Key Installation Principles outlined in this document should be followed. Please contact DuPont with any questions regarding these Installation Guidelines.

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Technical Specifications

DuPont™ Tyvek® WRBs used in construction products are made from 100% flash spunbonded high density polyethylene fibers which have been bonded together by heat and pressure, without binders or fillers, into a tough, durable sheet structure. Additives have been incorporated into the polyethylene to provide ultraviolet light resistance. DuPont requires that DuPont™ Tyvek® CommercialWrap® and CommercialWrap® D WRB's be covered within 9 months (270 days) of installation and that all other DuPont WRB's be covered within 4 months (120 days) of installation.

DuPont™ Flashing Systems products are made from a synthetic rubber adhesive and a laminate of polyethylene film, polypropelene film, elastic fiber, synthetic rubber adhesive, polyurethane adhesive, and a top sheet of flash spunbonded high density polyethylene fibers or polypropelene film. Additives have been incorporated into these materials to provide ultraviolet light resistance. DuPont requires that DuPont™ Flashing Systems products be covered within four months (120 days) of installation.

Warning

DuPont™ Tyvek® air and water barriers are slippery and should not be used in any application where it will be walked on. In addition, because they are slippery, DuPont recommends using kickjacks or scaffolding for exterior work above the first floor. If ladders must be used, extra caution must be taken to use them safely by following the requirements set forth in ANSI Standards 14.1, 14.2 and 14.5 for ladders made of wood, aluminum, and fiberglass, respectively. DuPont™ Tyvek® products are combustible and should be protected from a flame and other high heat sources. DuPont™ Tyvek® products will melt at 275°F (135°C); if the temperature of DuPont™ Tyvek® products reaches 750°F (400°C), it will burn and the fire may spread and fall away from the point of ignition. For more information, call 1-800-44-Tyvek.

DuPont™ Flashing Systems products and their release paper are slippery and should not be walked on. Remove release paper from work area immediately. DuPont™ Flashing Systems products will melt at temperatures greater than 250°F (121°C). DuPont™ Flashing Systems products are combustible and should be protected from flames and other high heat sources. DuPont™ Flashing Systems products will not support combustion if the heat source is removed. However, if burning occurs, ignited droplets may fall away from the point of ignition. For more information, call 1-800-44-Tyvek.

DuPont™ Residential Sealant and DuPont™ Commercial Sealant are irritating to skin, eyes, and respiratory tract. For proper usage, follow directions stated on the product label. For health information, refer to the Material Safety Data Sheet or call Chemtrec at 1-800-424-9300.

Note

When installed in conjunction with other building materials, DuPont™ Flashing Systems products must be properly shingled with these materials such that water is diverted to the exterior of the wall system. DuPont™ Tyvek® products are air and water barriers and not the primary water barrier. The outer facade is the primary barrier. You must follow facade manufacturer's installation and maintenance requirements for all facade systems in order to maintain water holdout properties and ensure performance of DuPont™ Tyvek® products. Use of additives, coatings or cleansers on or in the facade system may impact the performance of DuPont™ Tyvek® WRB. DuPont™ Tyvek® Weatherization Systems products are to be used as outlined in this installation guideline. DuPont™ Flashing Systems products should only be used to seal penetrations and flash openings in houses or buildings. DuPont™ Flashing Systems products are not to be used in roofing applications. For superior protection against bulk water penetration, DuPont suggests a system combining a quality exterior facade, a good secondary WRB and exterior sheathing, high quality windows and doors, and appropriate flashing materials paying attention to proper installation of each component. In a system where no exterior sheathing is used and the DuPont™ Tyvek® WRB is installed directly over the wall studs, exterior facade materials should be selected to ensure maximum protection against water intrusion. Careful workmanship and proper installation of each component is very important.

DuPont believes this information to be reliable and accurate. This information may be subject to revision as additional experience and knowledge is gained. It is the user's responsibility to determine the proper construction materials needed on each project.

For complete warranty information, please visit www.Weatherization.Tyvek.com or call 1-800-44-Tyvek.

This information is not intended to be used by others for advertising, promotion or other publication for commercial purposes.

For more information about DuPont Weatherization Systems, please call 1-800-44-Tyvek or visit us at www.Weatherization.Tyvek.com

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